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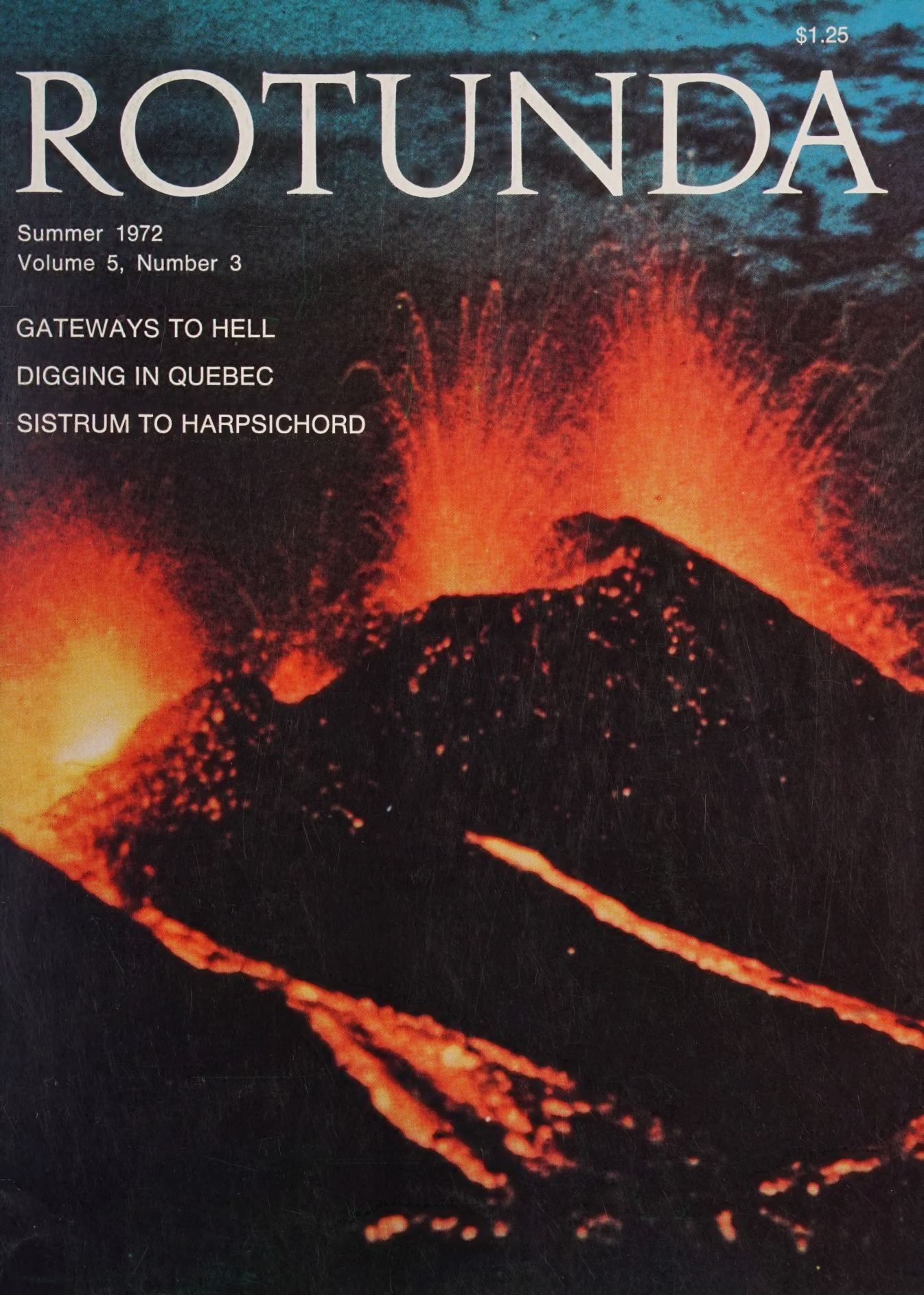
ROTUNDA

Summer 1972
Volume 5, Number 3

GATEWAYS TO HELL

DIGGING IN QUEBEC

SISTRUM TO HARPSICHORD



ROTUNDA

the bulletin of The Royal Ontario Museum
Volume 5, Number 3, Summer 1972

Contents

Spotlight with the Editor *Past, present and future in the* ROM **2**

Gateways to Hell
Volcanoes: earth's builders and destroyers Walter M. Tovell **4**

The Mirror of Music in the ROM
The R. S. Williams Collection Ladislav Cselenyi **16**

More Music in the ROM *Ancient instruments* Ladislav Cselenyi **26**

The Fort Senneville Excavations—1971 D. B. Webster **32**

Return to Africa *Old goat or giraffe?* C. S. Churcher **40**

The Growing Collections **45**

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The cover: The Hekla fires, 1970.
Photo by Solarfilma.
See story on page 4.

Spotlight with the Editor

Past, present and future at the ROM

Members crowd "Hidden Treasures" on opening night

JUBILEE SCIENCE EXHIBITION

As the Art and Archaeology exhibition "Hidden Treasures" closes, construction gets under way for ROM Science Departments' major Jubilee exhibition.

Titled "Nature's Biographer", the exhibition will open September 12 and run until November 5. It will display the activities of the Science Departments, illustrating how the collections are used, both by scientists and laymen. It will detail the history of exhibits in the Museum and show how an appreciation and understanding is gained through research of the world in which we live.

Sheer delight was the normal reaction to "Hidden Treasures". Rather like a mini-museum, the exhibition was extremely well attended, particularly the tours which were given daily at 2 p.m. and on two evenings each week.

ROMART '72

ROMart, the outdoor exhibition and sale of student art, has staked a virtually undeniable claim to be an annual event. This year's show, the second, attracted well over 100 artists, most from Toronto, but some from other parts of the Prov-

ROM*art displayed rich variety of media*

ince such as Fort Erie, Hamilton and Claremont. Their work filled the Planetarium Plaza and ran along the front of the Museum.

The judges were Kay Kritzwiser, art columnist for the Globe and Mail, and artists Alan Collier and Harold Town. They judged an exhibition of widely varied media and technique and finally selected nine exhibitors for awards of $50 each. This was a change from last year when major and runner-up prizes were awarded in three media categories.

Also new this year was live music that ranged from Rock to Dixieland; from Blues to Folk. Some loud, some soft, it was played throughout the two-day show.

PLANETARIUM'S ONE MILLIONTH

The McLaughlin Planetarium's Theatre of the Stars has had its one millionth visitor since opening in November 1968, and quite a fuss was made of her.

She is Mrs. Jocelyn Tonks, a 22-year-old student from Rivière du Loup, Quebec, who is attending York University. Over coffee she talked about her interest in astronomy and her previous visits to the Planetarium. It was appropriate then that the gift she received to commemorate her most recent visit was of astronomical instruments and books.

NEW GALLERY ON SCHEDULE

Work on the new Vertebrate Palaeontology gallery on the second floor continues apace and on schedule. Opening of the completed gallery is expected by late 1973.

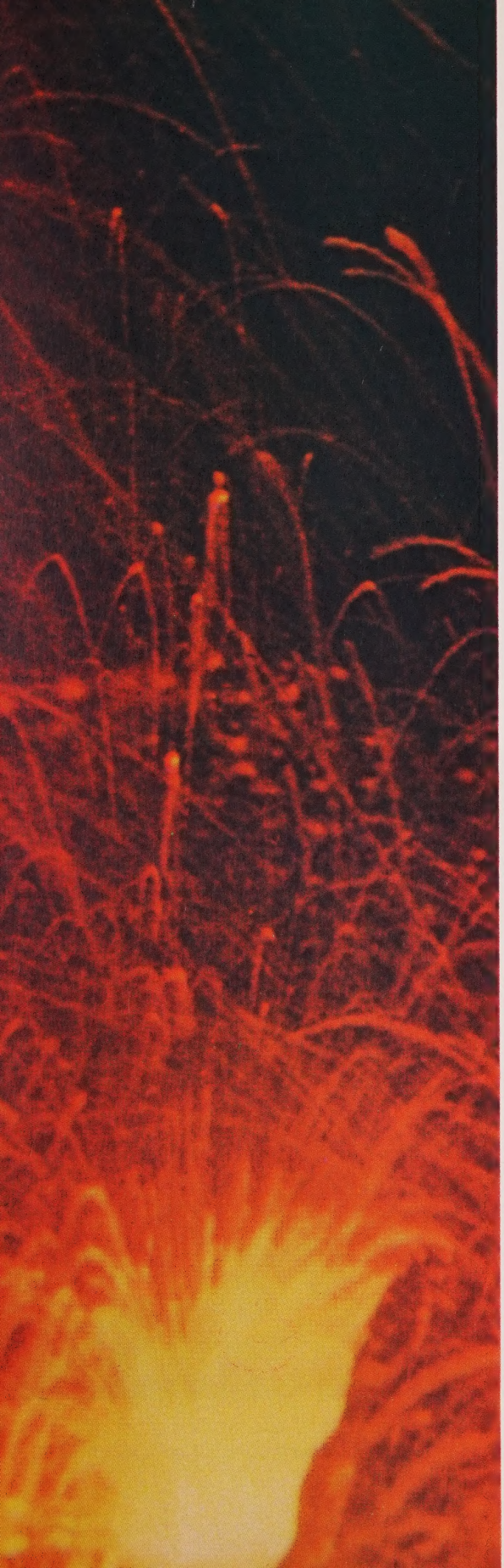
The semi-Badlands rock-wall backgrounds are well under way. In the centre section, the skeleton of a dinosaur is being mounted just above the trackway of dinosaur footprints discovered in the Peace River area some time ago. Nearer the Rotunda, one dinosaur of the planned group of three is now being mounted. Rough construction is completed, most of the airconditioning system and wiring is done, the background of restored vegetation will be started soon.

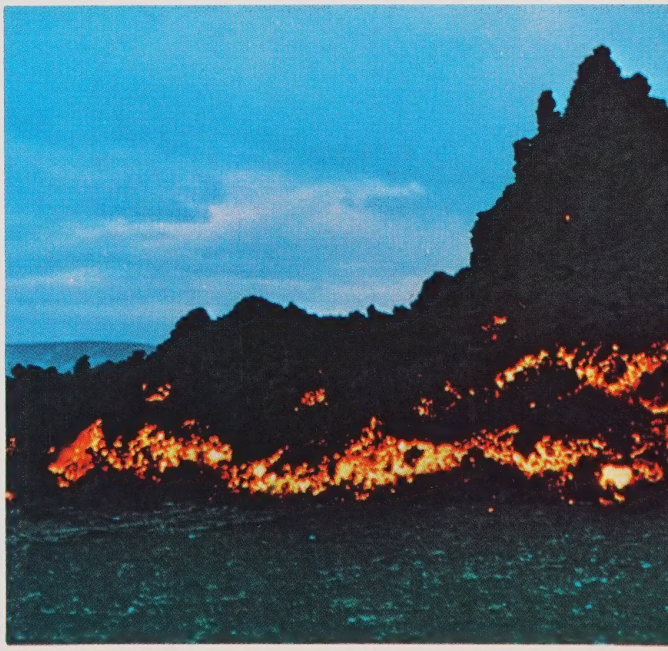
Dr. A. G. Edmund, Curator, Vertebrate Palaeontology, has just returned from eight weeks in the Caribbean, with giant transparencies, slides and movies of vegetation typical of that which co-existed with the dinosaurs. These transparencies are source material for the mini-theatre, projected effects and film-strip labels.

New Vertebrate Palaeontology gallery under construction

GATEWAYS TO HELL

by Walter M. Tovell
Associate Director, ROM





The Hekla fires, 1970.
Photos by Solarfilma, Reykjavik, Iceland

"Go to Hell!"

How often have you consigned your friends in jest, or your enemies in anger, to hell, the nether depths, the world of the damned? Where is hell? Is it some metaphysical kingdom where many of our friends (and enemies) deserve to suffer, or is it a real place somewhere within the earth?

It would seem it all began with volcanoes. Hekla, the famous volcano of Iceland, after an enormous eruption in 1104 A.D., was said by those who knew of it to be indeed "a gateway to hell, if not hell itself." This belief endured for many centuries.

In the sixteen hundreds it was written, "out of the bottomless abyss of Hekla Fell, or rather out of Hell itself, rise miserable cries and loud wailings, so that these lamentations may be heard for many miles around. Coal black ravens and vultures hover around this mountain and have their nests there. There is to be found the Gate of Hell, for people know from long experience that whenever great battles are fought or there is bloody carnage somewhere on the globe, then there can be heard in the mountain fearful howlings, weeping and gnashing of teeth." In 1675 readers of the day were informed that "the devil now and again drags the souls of the damned out of Hekla's fires in order to cool them on the pack-ice in the seas of Iceland."

Hekla is one of the historic volcanoes of the world. It has had 15 documented eruptions since about the year 1104 A.D., and undoubtedly many others before that date, since it is known to have been very active during glacial times.

Fireworks in the Öldugigar craters, Iceland. Photo by Solarfilma, Reykjavik, Iceland

Hekla eruption, 1970. Last stages of the cooling of the lava, July. Photo by W. M. T.

The most recent eruption began on May 5th, 1970, one of over one hundred and twenty known volcanic eruptions recorded in Iceland over the last one thousand years, and one of hundreds of thousands or millions of separate eruptions that have led to the building of the island of Iceland over the last 50 million years (the age of the oldest rocks on Iceland). Geologists conclude, therefore, that there was no Iceland before 50 million years ago.

The commonest rocks produced by Iceland's volcanic eruptions are called *basalt*. They are dark gray to black, fine-grained igneous rocks. The total thickness of all basalt flows that make up Iceland is not accurately known; one estimate places it at over three kilometers. What is known more accurately is that in the last 10,000 years nearly five hundred cubic kilometers of basalt have been produced. In fact, since 1850, 25% of the total world production of lava has come from Iceland, and about 75% of all volcanic products have been emitted from Icelandic volcanoes. So Iceland may indeed be considered the "Gateway to Hell!"

The best known recent Icelandic eruption was the birth of the Island of Surtsey, in November 1963. Volcanic action built Surtsey to a height of 175 meters above sea level from a depth of 130 meters, so that the total relief of the island was 305 meters above the sea floor. The spectacular birth of Surtsey has been widely documented in films and TV specials. To scientists it indicated the way in which Iceland itself began, 50 million years ago.

When most people think of a volcano they picture high conical mountains, such as Fujiyama in Japan, Popocatepetl or (among the more recent arrivals) Paricutin in Mexico. In Iceland, however, volcanoes are not conical mountains. The basalt eruptions emerge from fissures or cracks in the earth's crust. The centres from which the lava is emitted do form small cones, but the lava itself flows out gently and quietly and, because it is very fluid, it usually covers vast areas.

The best example of an Icelandic fissure eruption is one that took place in 1783. It has been described as the largest eruption on earth in historic times, and perhaps the largest within the last 10,000 years. The lava erupted from a large fissure, the Laki fissure. At least 115 small craters developed along the 15-mile length of the fissure. The eruption began on June 8th, 1783, after a series of earthquakes, and lasted until early February, 1784. The lava flow covered about 60 square kilometers.

Archaeology and history have documented many famous spectacular and catastrophic vol-

Zones of intensive earthquake activity

Ixtlaccihuatl and Popocatepetl. Courtesy Mexican Government Tourist Department

Far left—Hekla eruption, 1970. Advancing front of lava flow, May-June. Photo by Solarfilma, Reykjavik, Iceland

canic phenomena. Probably the best known of these is the eruption of Mount Vesuvius in 79 A.D., which destroyed the cities of Pompeii and Herculaneum near present-day Naples. However, Mount Etna on the island of Sicily—the highest volcano in Europe, rising 3,540 meters above sea level—has an even longer and more distinguished history. Homer makes reference to Etna in about 800 B.C., and Virgil (70 B.C. to 19 A.D.) describes a volcanic eruption associated with it. Between 1669 and 1928, 33 separate eruptions spaced a little over eight years apart have occurred on Mount Etna. Its most recent eruption began on April 5th, 1971.

As a demonstration of the sheer power of volcanic eruptions and of the energy pent up within the earth, the destruction of the island of Krakatoa, in the Sunda Straits between Java and Sumatra, is the best example. In 1883 this island literally blew its top. An estimated five cubic miles of rock was pulverized and shot into the air, forming a dust cloud 80 kilometers high. The detonation was heard nearly 5,000 kilometers away. The climactic explosion was preceded by others of lesser intensity, and it is written that "because of the intensive noise no one in all of western Java was able to sleep there at a distance of about 100 miles."

Mount Fujiyama, the highest mountain in Japan, is noted for its graceful symmetry. Courtesy Japan Travel Bureau

A catastrophe similar to that of Krakatoa is believed to have occurred about 1520 B.C. in the Eastern Mediterranean. This explosion blew up a large part of the Cycladic Island of Thera, and submerged a large area. Much of the present Island of Thera (Santorin) is now buried in volcanic ash to depths of 30 meters. This prehistoric crater is 600 meters deep and 83 square kilometers in area. Some classical archaeologists believe that this explosion led to the fall of the Minoan Empire.

Volcanic eruptions, whether spectacular or quiet, occur at vents in the earth's crust from which lava (molten rock) and "smoke" are emitted. The lava solidifies to form rock types such as basalt, andesite, rhyolite and dacite. The "smoke" is mostly steam, but includes *tephra*—particulated bits of rock varying in size from very fine ash to large fragments called bombs. In addition to the tephra, the "smoke" of a volcano is made up of various gases. Hawaiian volcanoes, for example, emit "smoke" of the following composition by volume: steam, 79%; carbon dioxide, 12%; sulphur dioxide, 6%; under 2%: nitrogen, hydrogen, carbon monoxide, sulphur and chlorine.

Volcanic rocks that are emitted at the earth's surface have temperatures ranging between 1000 and 1500 degrees centigrade. From such temperature measurements and geophysical evidence, it appears that the depths at which rocks begin to melt beneath volcanoes are quite variable. Most people are aware that the earth's core has a liquid portion at a depth of about 3,500 kilometers, and the conclusion is often drawn that the source of volcanic materials is this portion of the core. Such is not at all the case. Volcanic material comes from either within or just beneath the earth's crust, at or near the top of the mantle.

The source of the lava in Hawaiian volcanoes is about 60 kilometers beneath the islands. Since the earth's crust beneath Hawaii is between 5 and 6 kilometers thick, the volcanic material must come from the mantle.

The gases emitted during a volcanic eruption were originally dissolved in the *magma*. When the magma reaches the surface, the gases are released because of the decrease in pressure;

Northeast section of Lakagigar crater row, south central Iceland. This fissure eruption along the Mid-Atlantic Ridge fracture zone has produced a 25-kilometer alignment of over 100 spatter cones and conelets, many mantled with ash and lapilli from the 1783 eruption which produced the alignment.

Photo S. Thorarinsson

Rotunda/Summer, 1972

thus the magma becomes gases and lava. Indeed, it is the gaseous pressure in the magma that provides the mechanical energy of a volcano. On a far smaller scale, it is the same kind of energy that is released when a bottle of pop that has been warmed and shaken, is opened. Try it!

Most active volcanoes—in fact about 60% of them—occur around the Pacific Basin, at the margins of the continents of the Americas and Asia. In places they form islands arranged in arcs. Other active volcanoes are associated with the Mid-Atlantic Ridge, of which Iceland is part, and with the Mediterranean Basin. The distribution of volcanoes is closely associated with the distribution of earthquakes (see ROTUNDA, Summer 1971; *When the Earth Speaks*).

The centres of earthquake and volcanic activity are associated with a third global phenomenon, that of the young mountain systems of the world, those along the eastern shores of the Pacific Basin—the Andes of South America and the Coast Ranges and Rockies of North America. The only volcano in North America considered to be active (excluding the Aleutian Islands) is Mount Lassen in California. During the last 650 years volcanic eruptions took place at Mount Edziza in central British Columbia, while in the northwestern United States are such geologically recent volcanic peaks as Mount Ranier, and the volcano-related phenomena of Yellowstone National Park's hot springs and geysers. Indeed, throughout the Western Cordillera as a whole, great thicknesses of volcanic rocks have accumulated over the last several hundred million years.

Volcanic rocks about two billion years old occur in Northern Ontario and elsewhere throughout the Precambrian Shield. Good exposures can be seen around the townsites of Timmins and Kirkland Lake, as well as further west in the Thunder Bay district. Geologists have suggested that the original accumulations

The summit of Mauna Loa, with Mauna Kea in the distance.

Courtesy U.S. Dept. of the Interior, Geological Survey

of these volcanic rocks and associated sedimentary rocks formed the beginnings of the North American continent. Study of these rocks, and comparison of them with those in Iceland, tempt one to suggest that the volcanic eruptions of Iceland mark the beginning of a new continent.

Volcanoes are not merely the fire-and-brimstone "gates of Hell," invoked to reform the wicked or recalcitrant. They have a geologic as well as a metaphysical importance. In the first instance, they build lands—by forming islands such as Iceland and Surtsey, and by contributing to the enlargement of continents. Secondly, there is an intriguing theory that the earth's atmosphere and oceans may be of volcanic origin. Throughout geological time, volcanic eruptions have brought large quantities of gases to the earth's surface, and they are still adding to and changing the composition of the atmosphere and the ocean. The total quantity of material from volcanic and related phenomena in all their aspects might account for our air and oceans!

Pillow lava, a characteristic volcanic rock. Precambrian Shield. W. O. Mackasey; Ministry of Natural Resources

Ropey lava is characteristic of many modern volcanic flows. This one, on the eastern shore of Lake Superior, is over a billion years old!

Mount Edziza, a volcanic cone covered with permanent glacial ice, Stikine Plateau, northern British Columbia. Courtesy Geological Survey of Canada

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Walter M. Tovell, from 1949 until this year Curator of the ROM's Department of Geology, is now Associate Director of the ROM. He has written extensively for popular and scholarly publications, has undertaken geological surveys by pack horse and by helicopter, and has worked on sampling and coring programmes on Lake Huron and Georgian Bay with the Great Lakes Institute. Dr. Tovell writes of the volcanoes of Iceland from personal knowledge, having visited Hekla just after its 1970 eruption.

THE MIRROR OF MUSIC IN THE ROM

by Ladislav Cselenyi,
Assistant Curator,
European Department

One of the first major gifts to the Royal Ontario Museum when it opened 60 years ago was the R. S. Williams collection of musical instruments, ancient and modern. The Williams connoisseurship began simultaneously with the establishment of their manufacture of musical instruments in Toronto in 1856. The generous decision to present the fruit of two generations of successful collecting to a suitable institution, and hence to Canada, brought this splendid collection to the ROM. Thus music, one of the most characteristic phenomena of mankind, was mirrored back to scholars and the public.

Beautiful wood and parchment rose decorating the sound hole of the Celestini harpsichord. During studies of the instrument, the reverse side of the rose was found to contain a fragment of a colour block print on paper

Harpsichord made by Johannes Celestini in Venice in 1596 (913.4.97)

The earliest in the ROM's display of European musical instruments is an Italian virginal of about 1560, from which we can look back to its antecedents and forward to its descendants. However, it would be difficult to say which instrument, in a display of over 350 years of musical instruments, is the most important. Perhaps it is the harpsichord made by Johannes Celestini in Venice in 1596. Most original parts have been preserved, giving the instrument for study purposes a priceless value. It belongs among those rare specimens which show not only the original shape, sizes and characteristics of the action, but the material and workmanship even in such minute parts as the miniature dampers, and the delicate tongues in which the accurate plectra are inserted and regulated by means of very fine hog bristle springs. The keyboard with arched naturals of boxwood, the beautiful wood and parchment rose decorating the sound hole, show that this is an ancient instrument, made 376 years ago. The outer case is in harmony with the instrument, clearly representing the Italian style of the late 16th century.

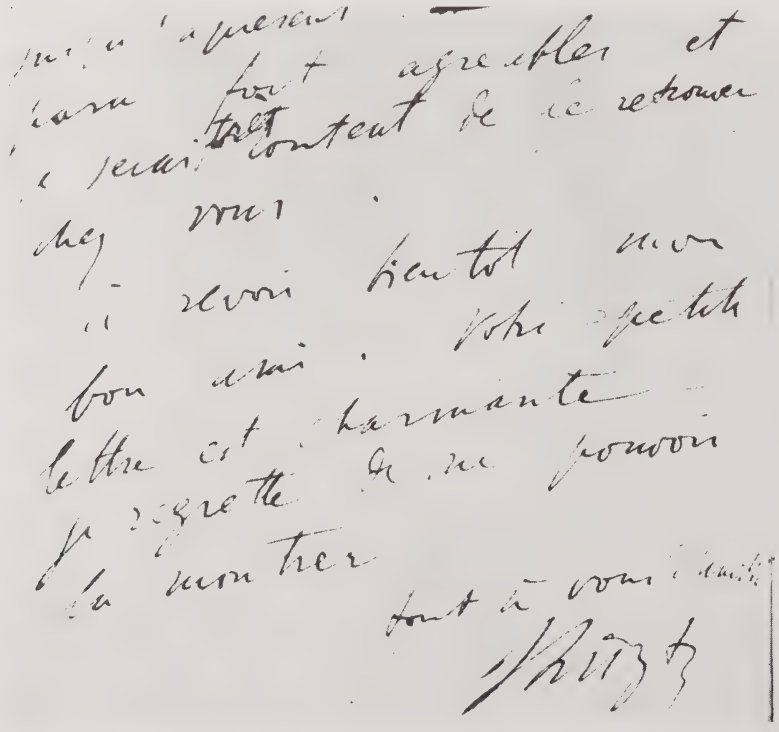
Some might prefer the famous double bass, once belonging to the collection of Dragonetti, which shows evidence of having been made in the workshop of Gasparo Bartolotti da Salo. Many other instruments in our collection are important both individually and as representatives of some nearly complete families of ancient and modern European instruments.

The Museum has experienced many difficulties in achieving what it has. Shortage of space and other needs have combined to slow its progress, and the collection of musical instruments has been no exception to this rule.

A number of letters passed beween Mr. R. S. Williams, the donor, and Dr. C. T. Currelly, first Director of the Royal Ontario Museum of Archaeology:

August 6, 1913:

. . . Enclosed please find list of antiques delivered to you recently. I still have other specimens which I would like to see you personally about before delivering them.



Fragment of a letter from Franz Liszt

The Dragonetti bass (915.19.1A) displayed in the Musical Instruments gallery

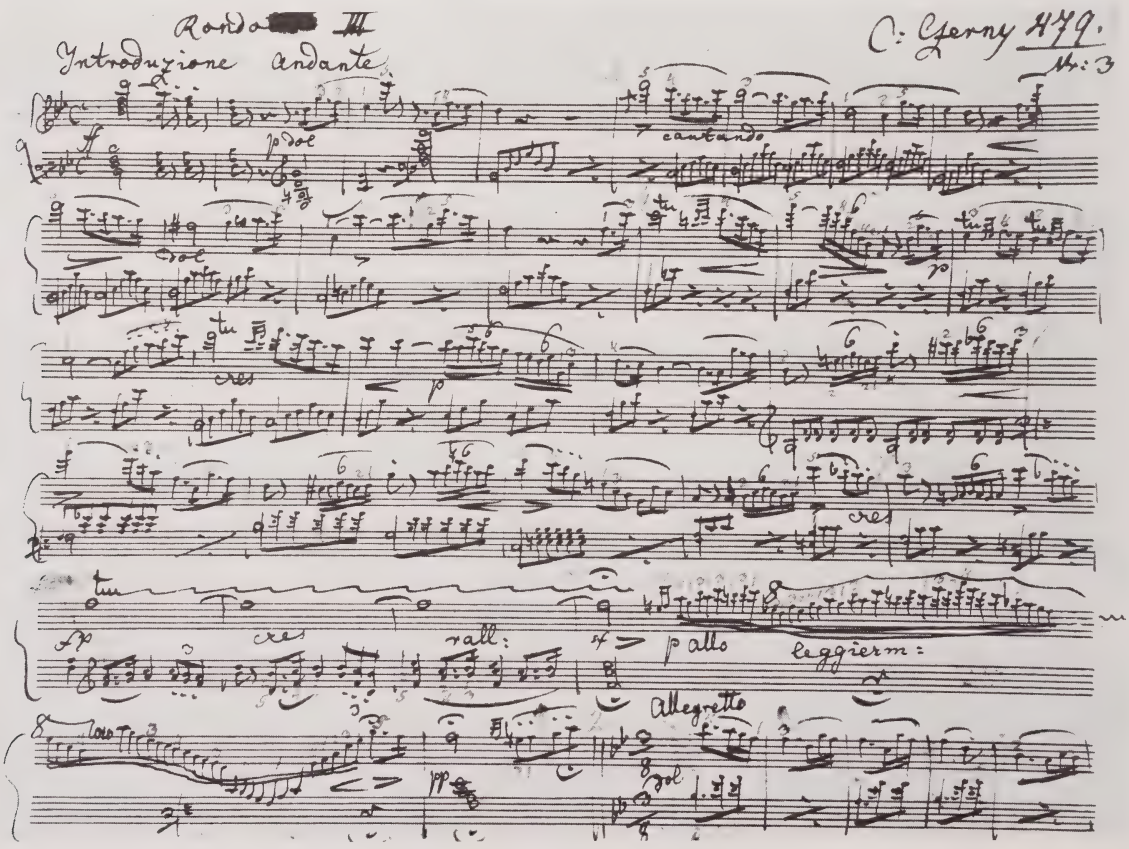
In regard to the arranging and labelling of this collection, please do not fail to call on me for any assistance you may need . . .
July 8, 1915:
. . . The Dragonetti bass which we delivered to you was given to the Duke of Leinster by Dragonetti. After the death of the Duke it was sold by his nephew, the late Lord Gerald Fitzgerald, to Messrs. Hill & Sons, London, from whom we acquired it in August 1909.

Gasparo da Salo, the maker of this string bass, was born in the town of Salo, Province of Brescia in or about the year 1542 and died there on the 14th of August 1609, and was buried in the Church of San Joseffo.

Domenico Dragonetti was born at Venice April 7, 1763, and died in his own house, Leicester Sq., London, Eng., April 16, 1846.

We trust this information will be of assistance to you when you are ready to display the bass . . .
July 7, 1919:
. . . Re the String Bass Bow which recently arrived from Europe, the following particulars may interest you.

This bow was formerly part and parcel of the famous Dragonetti bass. It was included with the bass in the Dragonetti Will, in which he left it to the Duke of Leinster. I believe the Duke of Leinster has stamped his name on it on the opposite side to the maker's brand . . .
June 1, 1920:
. . . I am taking the liberty of sending to you direct from London, England, a very fine and interesting piano, as described in the circular enclosed. This will I think be most interesting to the students of the piano.



(N.B. this was the Johannes Zumpe instrument.)

February 11, 1921, letter to R. S. W. from the Secretary to the Board of Trustees, Royal Ontario Museum:

. . . At the last meeting of the Board of Trustees of the Royal Ontario Museum the Director of the Department of Archaeology reported your donation of a framed pen-and-ink portrait of Dragonetti, also of a forte-piano (the first piano made in London)[1] by Johannes Zumpe, 1768. The Trustees are very much pleased with these additions to your fine collection and have directed me to convey to you their thanks for the gifts . . .

February 14, 1923, R. S. W. to C. T. C.:

. . . I have in my possession an extraordinary example of a small sized Viola d'Amour by Louis Guarsen. I cannot recall ever seeing one before. The peculiarity of this specimen is that it is the size of the Violin instead of the regular Viola.

If some of your attendants are down our way, I will be glad to add it to our collection or will drop it in the first time I am up in that locality . . .

Suddenly, after more than ten years of friendly collaboration and understanding, appears a letter full of bitterness and disappointment.

April 24, 1933, R. S. W. to C. T. C.:

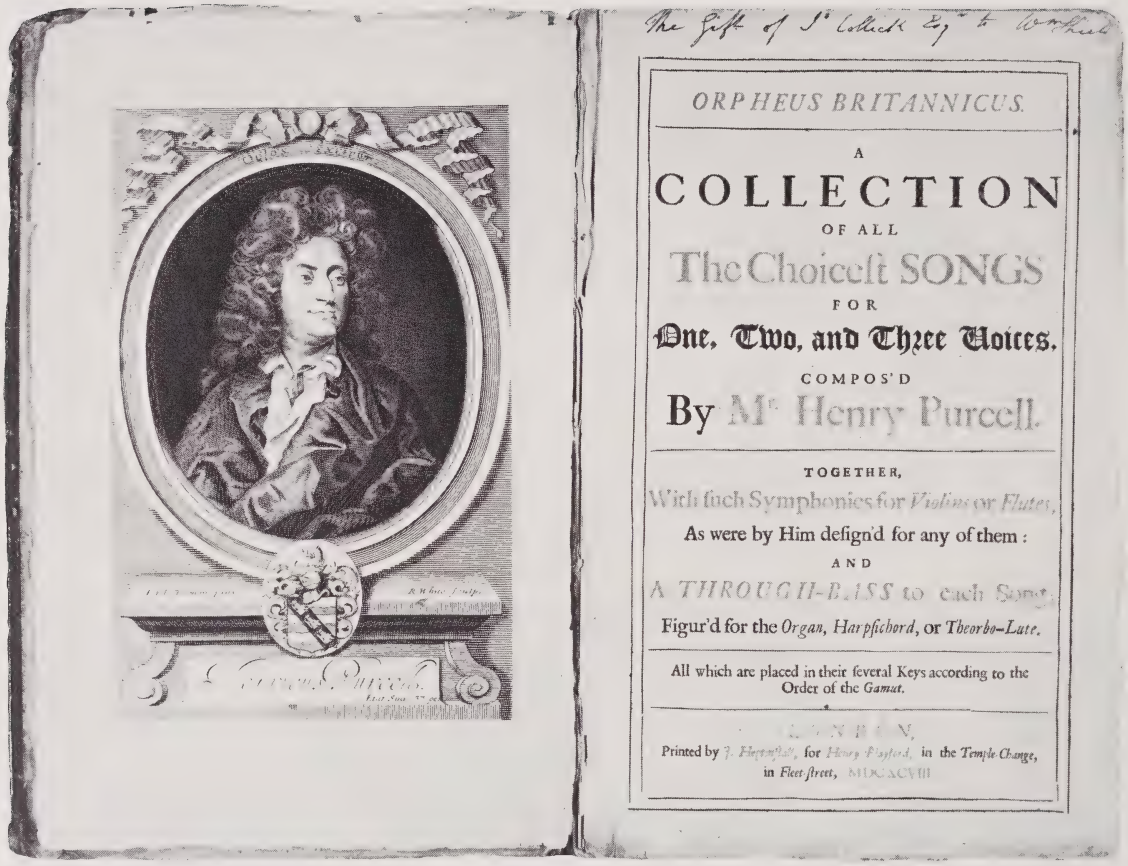
. . . I had occasion to visit the Museum the other day, and had a talk with your secretary.

She informed me of the proposed lay-out of my collection, which to say the least is very disappointing.

To my mind, it is a crying shame and disgrace that a collection such as I have in your care should be used to bolster up other

The Dancing-Master:
Or, Directions for Dancing COUNTRY DANCES, with the Tunes to each Dance, for the Treble-Violin.
The Thirteenth Edition, containing above 360 of the Choiceſt Old and New Tunes now uſed at Court, and other Publick Places.
The whole Work Reviſed and done in the New Ty'd-Note, and much more Correct than any former Editions.
THE DANCING SCHOOLE.
Printed by W. P. and Sold at the Dolphin and Crown in St. Paul's Church-Yard; and J. Cullen at the Buck within Temple-Bar. 1706.

Fragment of a rondo by Czerny


The Gift of Sr Collick Kt to Worksd
ORPHEUS BRITANNICUS.
A
COLLECTION
OF ALL
The Choicest SONGS
FOR
One, Two, and Three Voices.
COMPOS'D
By Mr Henry Purcell.
TOGETHER,
With such Symphonies for Violins or Flutes,
As were by Him design'd for any of them:
AND
A THROUGH-BASS to each Song,
Figur'd for the Organ, Harpsichord, or Theorbo-Lute.
All which are placed in their several Keys according to the Order of the Gamut.
LONDON,
Printed by J. Heptinstall, for Henry Playford, in the Temple Change, in Fleet-street, MDCXCVIII

exhibits, thus utterly destroying the educational features so important to the young musicians.

I had visions of adding a number of important pieces to my collection, and would have had considerable pleasure in showing my collection to my friends, but under the proposed arrangement, it would be useless.

I would much prefer that the collection should be kept intact, even if it were housed in the cellar . . .

This brought a soothing reply next day from Dr. Currelly, full of the Museum man's point of view, that a room full of pianos would look rather forbidding, and on April 29 the donor continued the correspondence with his own enthusiastic views about the use of his collection:

. . . Sorry to hear that my views did not agree with yours, but with all your experience I still think you are wrong. I, personally, have visited a great many Museums in the old land, as well as in America but I cannot recall one where Musical Instruments are displayed as you propose.

The principal use of this collection is for the education of musical students, and this use is defeated by the fact that the instruments are not together so that they can be compared and the points of difference shown by the teacher.

If you will give me an idea of when you

will be at the Museum, I will call and talk over the matter with you . . .

However, the aims of the generous donor had never been at variance with those of the Museum. The clouds and storms raised by temporary misunderstandings disappeared with the opening of the new wing in 1933, as testified by Mr. Currelly's letter to Mr. Williams, written on the very eve of the opening: . . .

> The decision of the Board that the Museum must be re-opened at such an early date has meant that we have had about seven months to arrange seventy galleries. You can understand the mad scramble it has been to get things into an even presentable condition, and it will be several months before we can have all our permanent cases made and the galleries completed. I trust you will not be displeased with the way your collection is exhibited, considering that it is a temporary arrangement. If you will arrange a time that suits you to come in to help us with the permanent arrangement, we shall be tremendously grateful.
>
> I hope we shall have the pleasure of seeing you here tomorrow at the official opening . . .

Next day brought the answer.

Oct. 12, 1933: . . .

> I think you have done wonders in the short time the Directors allowed you. I will be delighted to assist you in the arrangement of my collection. I have a few suggestions that I think will be helpful, and I have some other instruments to add to my collection which I think will be interesting to the Publick.
>
> If you will arrange a date I will be pleased to spend whatever time is necessary with you to arrange the collection to the best advantage . . .

So the ice was broken, and the former pleasant harmony restored. Later letters serve to emphasize the generous motives of this connoisseur, who wanted his collection to be a resource for anyone who had an interest in music, whether serious or not.

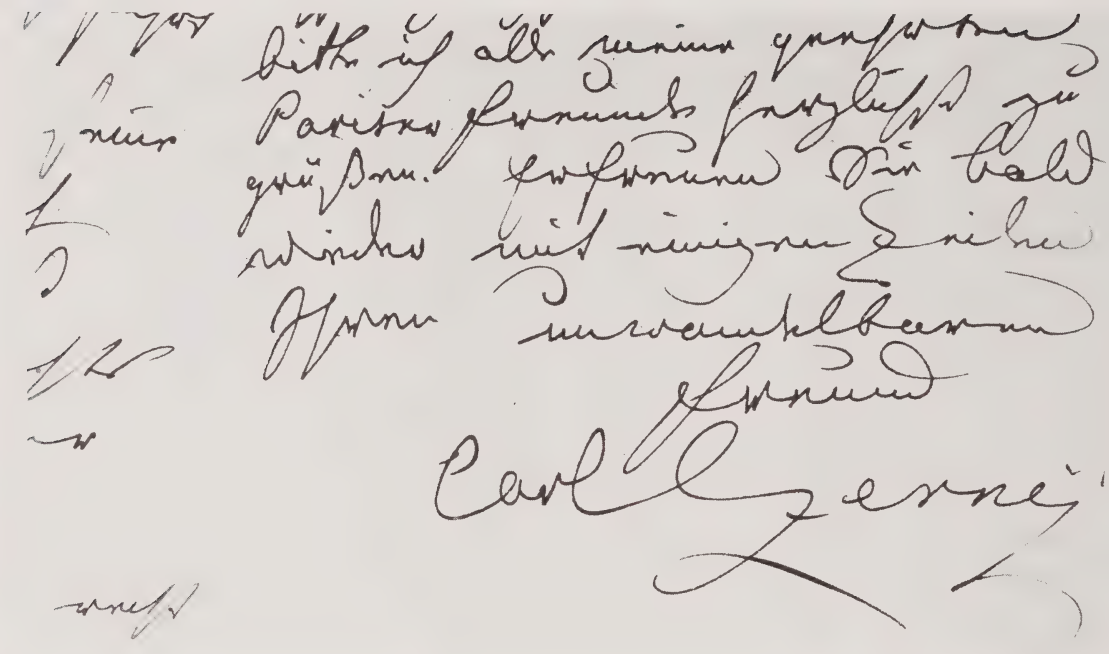
The instruments in the collection are excellent representatives of English musical instruments dating from remarkably early times. One, a Viola da Gamba, bears the label of Henry Jay, 1610, but this has not yet been authenticated. Another, by Barak Norman, is dated 1697. There is a 17th century kit-violin by Cuthbert, and 18th century kits by Henry Jay and W. Taylor, as well as English Guitars of the 17th and 18th centuries. Among the 18th and early 19th century keyboard instruments must be mentioned important examples of the spinet, harpsichord and piano, by such famous makers as Baker Harris, Kirckmann, Zumpe and Broadwood. Woodwinds are represented by instruments of Bainbridge, Ellard and Wood, and the brasses by works of Matthew Pace and Henri Distin. The British Harp Lute is the work of Edward Light.

It is impossible to say how the first instruments in the collection were acquired, but a study of these two personalities of music culture in Canada may help us to reach some conclusions. In 1861, thirteen years before his son was born, the elder R. S. Williams received a diploma from the Mechanics' Institute of the City of Toronto for displaying his collection of musical instruments. Years later his son was to write, "To my late father I want to pay my sincere gratitude for his wonderful help in making this collection possible." The collection was the father's idea, and the son expanded it.

Mr. R. S. Williams supplemented and rounded out his gift of the collection of instruments with a collection of more than 250 autograph letters and documents of famous personalities of the world of music, as well as a remarkable collection of rare music scores and books. The collection of autograph letters and documents was donated in 1934. There is so far no evidence of his father's participation in forming this collection, and it demonstrates the son's endeavour to become more deeply involved in the subject.

The papers were important and the collecting was done seriously; this was no accidental side issue to the collection of instruments. Emphasizing the life of music in England at the end of the 18th and throughout the 19th century, the collector seems to have been inspired by the idea of creating a complex of first-hand historical information, and giving a persuasive

Letter signed by Carl Czerny



picture of the culture of music in England, both material and spiritual.

The Williams family was of English extraction, and the wide-spread traditions of music in Toronto were rooted in the English world of music. The usefulness of the autograph collection is evident. For instance, a letter written in 1785 by Dr. Charles Burney, composer and author of the well known *General History of Music* is of interest to anyone anxious to know the historical background for the use of the Irish Harp as the symbol on the arms of Ireland. Letters of William Crotch, Mus. Doc., tell of the foundation of the Royal Academy of Music, of which he was the first principal. No less interesting are his reports on pupils, male and female, who were learning harmony from him in 1828. Many of them, such as Charles Lucas, Thomas Mudie and William Holmes became leading English musicians.

Among the autographs of musical personalities are those of English virtuoso performers, such as Thomas Attwood, pupil of Mozart, Sir John Frederick Bridge and Arabella Goddard. Features of musical life in England are represented by autographs of famous musicians and performers on letters to the manager of Covent Garden Theatre, notably Mario, Giulia Grisi, Malibran and Lind. Other autograph letters show such names as Beethoven, Berlioz, Czerny, Donizetti, Dragonetti, Flotow, Gounod, Halèvy, Leschetizsky, Liszt, Mendelssohn-Bartholdy, Paderewski and Paganini, Anton Gregor Rubenstein, Clara Schumann, Suppé, Verdi and Wagner. Even if the letters are not of such importance as some that are in other great collections, they still breathe the spirit of a time glorious in the development of music.

A correspondence that lasted from 1911 until 1921, between Professor Otokar Sevcik, noted Bohemian violinist and violin teacher, and R. S. Williams Jr., discloses Mr. Williams as the patron of a young Canadian violinist, Louis Rottenberg, paying his expenses for four years while he studied under Sevcik in Prague. Nothing further is heard of this protegé after

1921, when his performance was mentioned in the *Prager Tagblatt,* of which we have a clipping. He seems to have been a talented young man. *The Canadian Journal of Music,* May 1914, observed that it was not easy to become a pupil of Sevcik, who turned away hundreds of applicants.

The collection of musical scores in the R. S. Williams gift includes the works of such great musicians as Purcell and Handel, the first represented by a 17th century edition of *Orpheus Britannicus,* the latter by Samuel Arnold's 1786 edition of Handel's works in forty volumes. Among the church music is a 1714 edition of *Harmonia Sacra* or *Divine Hymns and Dialogues:* and *Les Cinquante Pseaumes de David* by Claude le Jeune, printed in Paris in 1650. Secular music is represented by such works as *The New Ayres and Dialogues* by John Banister and Thomas Low, printed in London in 1678; and the thirteenth edition of *The Dancing Master,* London, 1706. There is also some well known educational music, including *Forty-two Suites of Lessons for the Harpsichord* by D. Scarlatti and G. Tartini's *The Art of the Bow for the Violin.*

The only part of the R. S. Williams collection which had been catalogued before coming to the Museum was his library of rare and modern books on the history of music. We have a copy of the catalogue, but, alas, the books themselves were sold about 1947, after the donor's death, to a Mr. Koldowski, a violinist with the Toronto Symphony Orchestra who later moved to California. Mr. Williams wrote in the catalogue, "I hope in the near future to publish an illustrated catalogue of my collection of antique musical instruments and autograph letters of musical celebrities in the Royal Ontario Museum."

There was no time for him to realize this important aim. He died, and in the words of Fred Davy's obituary which appeared in the Toronto *Telegram,* March 31, 1945, ". . . The memory of Richard Sugden Williams, lifelong business man of Toronto in the music trade, who died last Saturday, will be perpetuated in the city by his wonderful gift to the Royal Ontario Museum of a large collection of ancient musical instruments of the finest make of past centuries . . ." The Museum carried out his aims and attempts to keep the mirror of music shining. In 1971 an illustrated catalogue of musical instruments in the Royal Ontario Museum was published. The nucleus is the R. S. Williams collection. The catalogue of autograph letters and musical scores is in preparation.

[1]*The earliest known English square pianoforte of normal construction is that made by Johann Zumpe in 1767 and described in the "Victoria and Albert Museum Catalogue of Musical Instruments, Volume I, Key Instruments" by Raymond Russell, London 1968.*

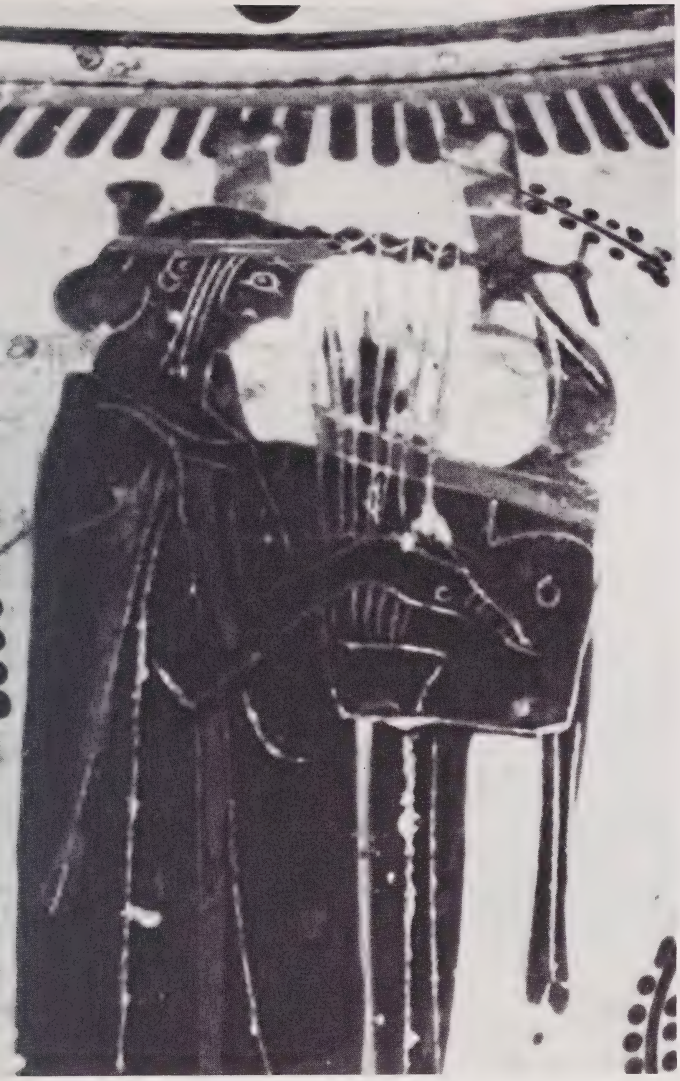
Ladislav Cselenyi, a former Director of the Slovak National Museum, was born in Slovakia in 1920. He studied at the Teachers' College and at the University of J. A. Komensky in Bratislava, earning degrees in music pedagogy and art history. He has written five historical novels, and composed shorter forms of music. Mr. Cselenyi came to Canada in 1966, and early in 1968 he joined the staff of the Royal Ontario Museum, where he is presently Assistant Curator, European Department.

MORE MUSIC IN THE ROM

Man has always made music. The human voice, the drum, the simple flute or whistle and the rattle have created pleasing sounds in even the most primitive societies. And musical instruments, or depictions of them, are to be found in almost every sector of the Museum's collected artifacts.

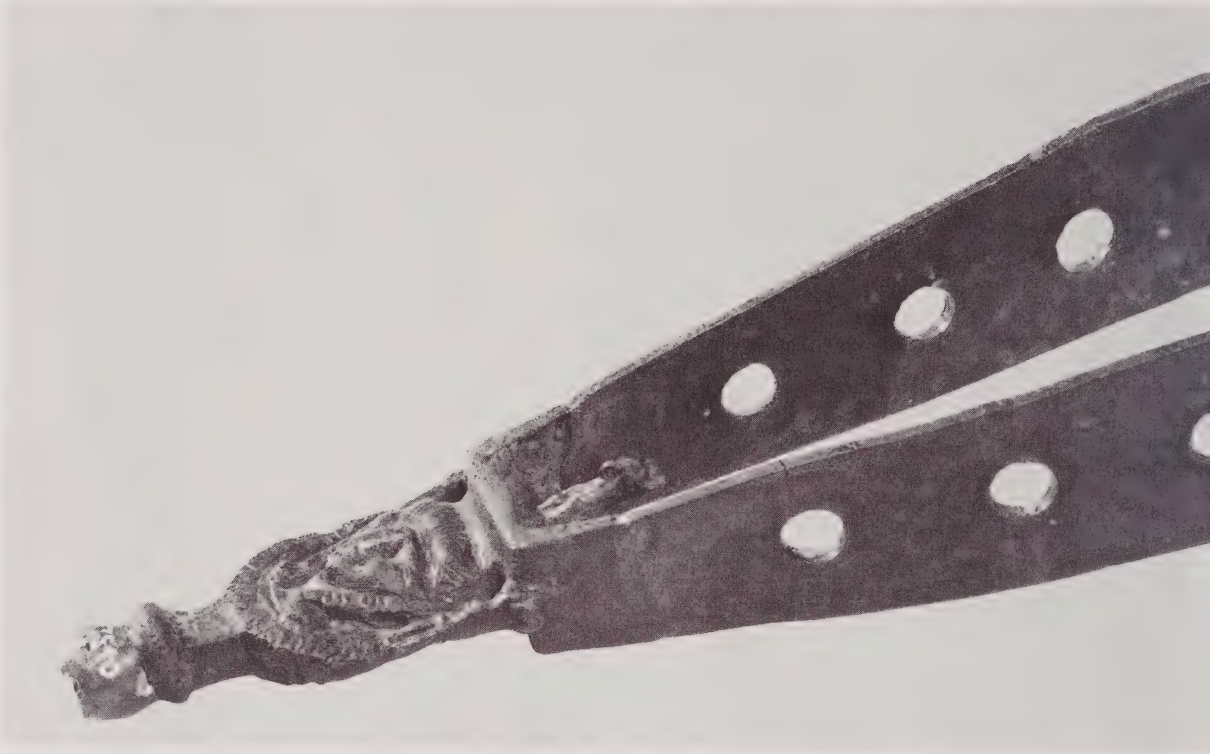
The Ethnology Department has an admirable collection of primitive musical instruments: conch shells or bamboo horns and drums, musical bows, nose flutes, rattles and courting flutes. These instruments present great opportunity to study the earliest development of musical instruments, as well as man's earliest conceptions of music.

The Greek and Roman collections contain excellent depictions of musical instruments ranging from the 6th to the 3rd centuries B.C., interesting for the history and development of musical instruments to their present shape and use. Kithara, several types of lyre, a warrior blowing a tuba (the predecessor of modern lip-vibrated wind instruments), and the tibia, single or in pairs, appear on



Greek and Roman pottery shows early musical instruments: a man plays the lyre, a woman the kithara; a soldier sounds the tuba, while another man plays a pair of tibia

Egyptian sistrum, called iba *or* shen. *Typical horseshoe-shaped frame, the "open" end sealed by a carved handle. The cross rods which supported small jingling sticks are missing*



Fragment of a relief from Gandhara (2nd-3rd century A.D.*) shows a double conical drum*

Figurine of kneeling Chinese musician holds the shê *or long zither*

amphorae, black-figured and red-figured vases, Campanian pottery and Gnathia wares. Etruscan bronze bells also testify to the attention paid by ancient man to the magic of sound.

The Egyptian sistrum from *c.* 500 B.C., shown in the galleries of the Egyptian Department, is particularly interesting in that ancient tools of music are very rarely preserved. From Roman Egypt of the 1st and 2nd centuries A.D. come terracotta figurines of tambourine and lyre players. The West Asian Department exhibits a Simon Nasi coin from the Second Revolt of the Jews (132-135 A.D.) with the picture of a contemporary kithara.

The ROM's famous collection of Chinese art has many representations of the culture of music from many areas and periods. There are T'ang statuettes of dancers accompanying themselves on a variety of instruments, possibly early 7th century, and from the George Crofts Collection. The musicians are playing the *p'ai hsiao* (flutes bound together), *sheng* pipes (a Chinese mouth-organ), *p'i-p'a* (a lute), *po* (cymbals) and clappers. Other statuettes, bands of mourners playing drums, flutes and kettledrums, are seen in funeral processions like the Northern Ch'i group of about 550-580 A.D. One of the figures in another group plays the long zither, *shê*, one of the oldest types of chordophons in China. Two lacquered tuning pegs from a similar type of musical instrument are from tombs at Chin-ts'un, 5th - 3rd centuries B.C. The rare collection of bronze bells shows one of the most typical of Chinese tools of music, mostly related to the spiritual life. The Chinese stone chime from 481-221 B.C. demonstrates the difference between these tools and those of the bronze age and neolithic

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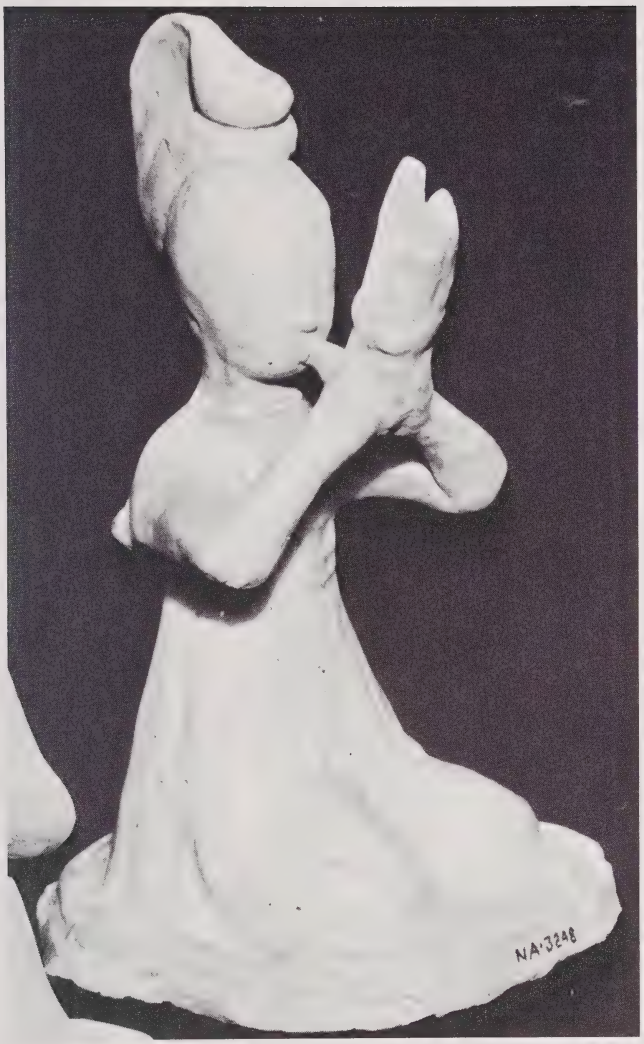


Statuettes of T'ang musicians playing the p'ai hsiao *(flutes bound together), the* sheng *(a mouth-organ) and the* p'i-p'a *or lute*

period. Among other rare specimens in the Chinese collection is the hourglass drum, *ts'u-chou* ware, made under the Sung dynasty, 960-1279 A.D. Preparations are being made to display the collection of instruments of Far Eastern origin.

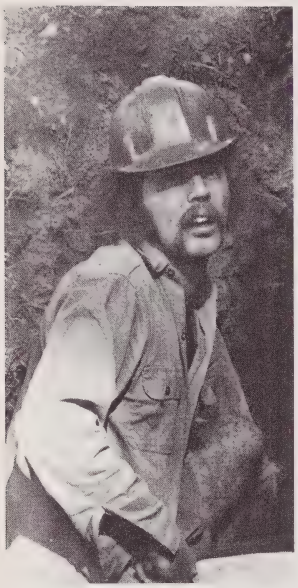
Fragments of a relief from northwest Pakistan, ascribed to the Gandhara period (2nd-3rd centrury A.D.), show very clearly musicians playing a double conical drum and various other musical instruments. A 16th century illuminated page from a Persian manuscript, depicting Joseph and Potiphar's wife, illustrates something of singing and tambourine playing in contemporary Persian society.

The ROM also possesses examples of European musical notation from the 14th and 15th centuries as well as later. The culmination of the ROM's representation of music culture is the display of European musical instruments of the late 16th to 19th centuries, arranged in the European Galleries two years ago.

L. C.

THE FORT SENNEVILLE EXCAVATIONS-1971

by D.B. Webster,
Curator, Canadiana Department



"All finished here, boss; what next?"

Conducting an archaeological dig is demanding work with usually not much romanticism. It could hardly be considered a vacation! Yet with a bit of luck and constant attention to detail, straightforward research excavations run quite smoothly and according to schedule. Just such was the Canadiana project at Fort Senneville last summer.

Excavation projects with resident crews also become short-term cultural capsules. They are influenced nearly as much by the associated personalities and living conditions as by standards of procedures and academic goals. To the management the dig becomes a total project entity: daily excavating and subsidiary essentials for 10 to 12 hours, a round-the-clock hotel with restaurant and full-time dictator-in-residence operation. To the diggers it becomes an experience, pleasant or otherwise, just a job or full interest and soul for three months in somewhat isolated close-quarters living.

Senneville is a wealthy and protective community on the western end of Montreal Island, approximately 20 miles from the city. Short-term rental housing in the area is extremely scarce, particularly of a size for a crew of 15. After spending a couple of months looking at everything from college dormitory rooms to cockroach ridden slums, good fortune finally came.

Pancake production, 7 a.m.

Far right—southeast bastion of the Senneville manor, completed about 1704, the most massive standing remnant of original structure

A huge, rambling, pre-battered—dig crews invariably accomplish this anyway—old Edwardian summer house became available for rent just south of Vaudreuil, only six miles from the Senneville manor site. It was a perfect set-up: estate milieu, huge acreage and no disturbing neighbours. And it was beautifully situated on the Ottawa River.

The crew was confirmed at $150 a month plus food and housing. Most of the people were new, though there were a few regulars from past projects.

With equipment and locally-resident crew assembled, in addition to the Websters' Newfoundland dog, a digger's large Labrador named Blue, and two cats, the convoy embarked in an ancient Land Rover and rusty Dodge van. We reached Vaudreuil ten hours later, where the Ottawa contingent had already arrived including Montgomery, another Labrador, aged and somewhat decrepit.

The full-time project cook was a girl pre-law student who arrived ill-equipped with a battered minimum of veteran dig gear plus extras from home. The house had an alleged 150-foot well, but the water was brown and tasted sulphurous even in coffee. Starting the second day, therefore, we transported drinking and mixing water in five gallon cans from local garages. In the process we became considerable connoisseurs of water; Vaudreuil water was a bit like bicarbonate; Ste. Anne water flat; Senneville water was sweet and best.

By the end of the first day we had erected a portable plywood tool shed on site, finished most of the initial excavation surveying, layout

Northeast bastion, after excavation but before wall stabilization

A team of stonemasons consolidated and stabilized freshly exposed walls. The intent is simply to maintain the existing ruins in a good state of preservation, but not to reconstruct

and staking and located a back-dirt pile. One hyper-eager anthropology student, who had advertised digging experience which turned out to be of three weeks duration, became an obvious draft volunteer for the Primary Excavation under the portable outhouse. Even this produced a few nails and an Indian-trade brass bell.

Meanwhile back at the estate, the management had pre-empted the Imperial Suite with its Empire-revival drapes and purple bathroom, and installed tables, drawing board, typewriter and adding machine. Portable work tables went everywhere necessary, and a huge enclosed downstairs porch became the artifact cleaning, cataloguing and conservation area for Nancy Willson, Canadiana technician. We accomplished most of the basic artifact work, including iron cleaning and ceramics and glass reconstruction, on a continuing basis.

The crew's natural mechanic, who was able to fix almost anything, started a summer career by resuscitating an extra and quite neolithic refrigerator for juice and beer. By acclamation, this success made him estate mechanic for the water pump—a shattery and tenuous device, lights which usually worked, drains which typically didn't and miscellaneous electrical and plumbing malfunctions which never ceased.

The daily work schedule began at 7:00 a.m. with the emergence of management to rouse everyone except the cook who was already in the kitchen. Breakfast was provided from 7:30 to 7:45 after which we piled into the trucks for the site by 8:30, following roundup of the troops from bathrooms, back porch and river-

bank. We scheduled a five-day digging week with Saturdays and Sundays in reserve to replace rain-lost days.

Tools and wheelbarrow were out and digging commenced about 9:00 to the song of the morning mosquitoes having first blood. Each crew member or team of two was assigned a specific area or square to excavate from initial sodding to completion and refilling. Nothing can cause more resentment on a dig than to have someone slog through two or three feet of sterile overburden, only to have a favoured digger or the management rush in to take over the trowelling of artifact-heavy occupation levels.

Lunch break came at noon sharp. We returned to the estate which proved to be much easier than fabricating and transporting box lunches for 15; usually it was enough just for someone to remember the large water Thermos and cups. One digger a day was detailed to help serve and clear table for each of the three meals as well as do heavy dishes. Roundup time again after lunch, then into vehicles and back to the site at 1:00 to 1:15.

We broke digging for the day at 4:00, unless we were onto something unusual. The troops were usually draggy-tailed by this time. Now came the daily sweeping and raking necessary for site clean-up; tools into the shed, wheelbarrows against it and the day's marked artifact pans into a truck.

Finally came the race for the shower. There was but a single serviceable shower in the house with one overhead and four waist level sprays, a rather unique showering experience. In addition there was the Imperial purple bathtub, plus one other, long defunct, drainless tub. Hot water was good for only the first three or four

The neck of a fine French blown glass medicine bottle, recovered in a plugged and refuse-filled drain under a courtyard wall. The bottle has since been fully reconstructed

showers, although we eventually cobbled up a system to increase this.

Mealtimes were a bacchanalian scene. Two large tables were joined to form a "T", platters, pitchers and bowls were passed around and someone always managed to spill something. Sometimes hair-curling conversation accompanied the meal, sometimes total silence except for the cats and dogs roaming around in search of food. We tried banishing the latter, but two dogs displayed a quiet begging manner, chins on table and soulful eyes, and Blue, in exile, suffered melodically and uproariously through a two-octave range. Old Monty was nearly blind and difficult to feed, for he couldn't tell where tidbits ended and fingers began.

The focal point of all this planning and work was the ruins of the early manor house at Senneville, a fortified chateau with corner bastions and a high stone-walled courtyard. The house had been built between 1696 and 1704 by Jacques LeBer, as a country residence of a size and sophistication befitting a fur trade financier and large land-owner. LeBer, however, and his descendants lived primarily in Montreal and Quebec with their lands and country houses leased to tenants.

With considerable ivy-grown standing structure and a parklike atmosphere, the site was a pleasant spot and, as well, more fascinating to excavate than most. Underground foundations of other long demolished structures and quantities of good artifact recoveries kept the diggers constantly interested in what was emerging and they worked harder than would have been the case on a more sterile site.

The crew, all university students, ranged in age from 19 to 25. Management could hardlly keep them down on the estate in off hours or through weekends, with the attractions of the big city so close by. Two even had their own cars. There was no TV in the house either, so the rusty van or management's car got borrowed for periodic evening or weekend runs to Montreal—"Just to a film, then right back," or "Supper and LaRonde and back early." Quite often it took a touch of the lash to rouse the troops in the morning.

On the estate recreation was rather staid—

Digger, recumbant

records, reading, card games or Monopoly, canoeing, darkroom work (two diggers had converted a front closet into a crude but usable photo lab), and trap-shooting over the estate gardens. With a twenty-gauge shotgun and clay birds, trap-shooting is at once great and skilled sport as well as magnificent psychiatric therapy for frustrations and aggressions such as those experienced by dig crews living in close quarters. Only the clay birds suffered. Six guitars and eight recorders, no one of which was tuned to another, completed the picture.

Local wisdom had assured us that the river was fine for swimming. For the dogs it was, but after a downwind and hot sun exposure to the aroma they took on, we decided to forego it. The lower Ottawa, although lined with cottages and general swimming, is also a veritable sewer, albeit illegally.

On through July and into August, the excavations grew deeper and even more extensive, and the quantity of 18th century artifacts expanded rapidly. Plywood shoring became necessary in one trench, and the diggers were required to wear hard hats in all deeper areas. With near perfect weather, hard pushing and softer ground than expected, the project was well ahead of schedule.

Artifact work involved most of the crew. Washing of each day's recoveries began almost as soon as they were uncovered. After washing, those objects which needed no further immediate work—ceramics, glass, brass and copper—were marked and boxed. Iron was scaled, derusted in plastic tubs with zinc and sodium hydroxide and finally washed and sealed. Reconstruction of ceramics and glass began after a few weeks and a sizable accumulation of sherds. Again, because of interest, a number of diggers were allowed to get involved in the picture-puzzle part of this operation, the trial-and-error procedure of fitting and temporary taping. Nancy Willson then did most of the final gluing.

The artifacts, ranging from pewter spoons to French faience and English Queensware tablewares, glass tumblers and wooden-handled knives, provided a good picture of the socio-economic levels of the house through most of its existence. Though built to standards of wealth and political power, its actual occupants appeared to have furnished sparsely, which was indicated by probate inventories, and lived at a somewhat modest, though not a habitant, domestic level. Basically, though a manor in dimensions, this was a middle-class house, neither a silver flatware—porcelain china and fine glass goblet establishment nor a wooden trencher—horn cup—iron spoon equipped farmhouse.

Refilling of redundant excavations went on continually, leaving only the final areas excavated to be filled at summer's end

By the end of August the Senneville project was essentially complete. Digging as we were on private and landscaped grounds, we worked to a system of trench, square, and specific area rather than total excavation (see Archaeological Newsletter, August, 1971), and had in fact been continually filling and resodding redundant openings as they were completed and recorded. Closing up thus took less time and effort than it might have—filling the final excavation areas, grading to retain for restoration wall tops we had exposed and sodding and reseeding.

Though the house and bastions had been burned out in 1776, by the American general Benedict Arnold during his Quebec-Montreal campaign, stone walls had largely remained. The house was never rebuilt, and some of this structure had gradually collapsed.

The owners of the site had started a continuous restoration project about 1920, limited to stabilizing standing walls. During the summer a stonemason began consolidating walls that the excavations had exposed—the two courtyard bastions and a cistern and fireplace, as well as the tops of walls in excavations to be refilled. The latter wall tops were left exposed by angled grading during refilling.

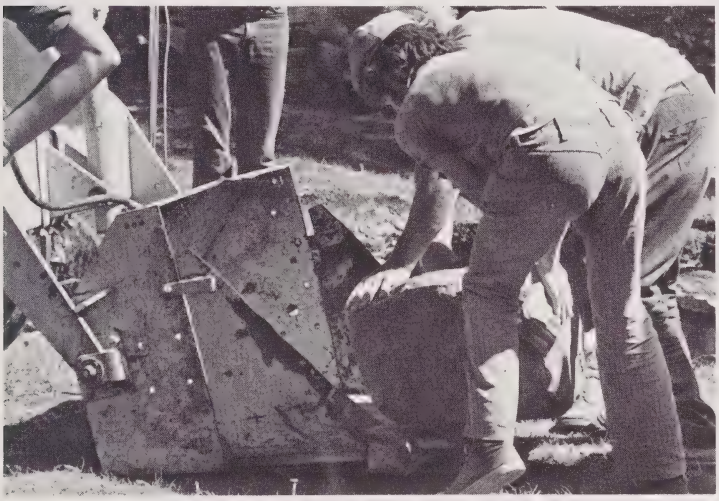
Thus, unlike the Ile des Soeurs project in 1969, where promised stabilization never came about, the owner of the Senneville site is conserving many of the exposures of the excavations, and adding to the permanently visible remains of the chateau.

For aerial photographs a neighbouring Sennevillian had most kindly offered management his services, with his four-place Bell jet-turbine helicopter. He was also, as it turned out, organizer host for the annual Eastern Canadian championships involving some 50 horses and 32 jumps in three days of punishing competition. The still-present younger members of the crew, not really needed for site grading or artifacts packing, plus a visitor, were dispatched to man jumps, each of which required an observer-recorder. Now descended three solid days of rain, the first all summer. It was magnificent for sodding and seeding at the site,

but the cross-country course became wall-to-wall mud, with slipping and sliding horses, and kids sodden but missing nothing.

The domestic and people side of a large-crew archaeological project can, in a very different way, be quite as interesting as the project itself, and as consuming of time and energy. Ignoring minor matters, such as prolific spiders, we had always to be aware of potential pitfalls, and the truism of Murphy's first law—anything that can go wrong will. However, the Senneville operation went smoothly and was highly successful with only one disaster after the project was completed. In terms of overall results and artifact recoveries, the project produced even more information and material than the LeBer house excavation on Ile des Soeurs. A selection of artifacts is on exhibition at the Canadiana building of the Royal Ontario Museum.

Together these projects comprise virtually the only highly productive excavations yet undertaken on sites of large rural 18th century domestic establishments. A full joint report is currently nearing completion, but more excavation projects are needed in areas other than Montreal.



Disposing of a problem

Donald B. Webster, "management" in this tale of a summer's dig, was appointed Curator of the Canadiana Department in 1966. He has a B.A. from the University of Maine and an M.A. in history and economics from the University of Rhode Island. Mr. Webster has written extensively on military and technological history, and more recently on Canadian ceramics. He has a special interest in 17th and 18th century colonial Canada, particularly its economic and technological history.

RETURN TO AFRICA

by C.S. Churcher,
Research Associate

A palaeontologist knows Africa for a number of important reasons which are not common knowledge. The most general may well be the fame that the continent has gained through the discovery of many ancestral man-like creatures, whether monkey, ape-man or man. A less well known contribution to the faunas of the earth that originated in Africa is the Order Proboscidea, today represented by the family of elephants. At one time Proboscidea had representatives on most continents and showed astonishing variety, including the shovel-tusked mastodon, hairy mammoth and true elephant. The ancestral Primates and Proboscidea all span the Tertiary from the Eocene to the present.

There was a far older animal group that historically emerged in Africa and, while relatively unknown, was generally as fundamental as were the Primates and Proboscidea. This group, the mammal-like reptiles, flourished during the Permian and Triassic and were first described from the Karoo Beds of South Africa by various well known scientists, among them Dr. Robert Broom. These reptiles are now known to have also inhabited Argentina, Brazil, India and, most recently discovered, Antarctica.

My return visit to Africa in 1968 was connected with all these palaeontological and fossil items (see ROTUNDA, Spring, 1968). I spent January through March in Kenya, at the Centre for Prehistory and Palaeontology, Nairobi, working under the aegis of Dr. Louis S. B. Leakey. During the next three months I was in South Africa, associated first with James Kitching of the Bernard Price Institute for Palaeontological Research, University of Witwatersrand, Johannesburg,

Reconstruction of a young individual of Palaeotragus primaevus *with the volcano Chepteron in the background. There is no evidence that the okapi-like shading in the reconstruction actually was present on* Palaeotragus primaevus.

Left lower jaw of a young Palaeotragus primaevus *from Fort Ternan, Kenya. Note the last 'incisor' is really the milk canine and that the first three cheek-teeth are deciduous dentition.*

and later with Dr. C. K. Brain, now the Director, of the Transvaal Museum, Pretoria.

Dr. Leakey had long recognized that during the Miocene Epoch there existed in East Africa a curiously long-limbed giraffe-like creature, as represented by a deposit located near Fort Ternan Station. This beast was known from about 250 skeletal elements comprising teeth, horns, jaws, vertebrae and limb bones. This was quite an extensive sample of the animal from which to reconstruct its proportions, assess some of its individual variation, identify it and relate it to other known giraffes, living or extinct.

The first examinations are usually the most inspiring, and the animal did indeed seem most elegantly elongated in all the longbones of the legs. Its teeth were definitely giraffe-like, having the enamel of the sides delicately grooved like the bark of a diminutive tree, and possessing the *sine qua non* of giraffe teeth—lower canine teeth having a crown composed of two large, flattened lobes. But it was a small animal, no larger than a deer of medium size and thus no obvious giraffe.

Extinct giraffes came in many queer patterns, the living form being considerably less outrageous by comparison. It is presently considered normal for a giraffe to be tall with long neck and legs and small hair-covered horns not unlike shaving brushes about eight inches long. Extinct forms had long straight horns that pointed up or sideways, curved horns like those of a goat, although of course lacking the horny sheath, or amusingly twisted and knobby horns that looked like an antler built to take a 10-ton load. But the Fort Ternan giraffe was none of these. It was too small, its neck was not very elongated and its legs were. Typical giraffes had both long legs and necks and tended to be large. Some were much heavier and consequently had shorter necks and legs, but were still similarly proportioned.

The Fort Ternan giraffe has one other relative that is still extant: the okapi of the Congo Forests, an almost mythical animal first known to Europeans at the turn of the century. It hides in the dense subumbral forests, and while hunted by pygmies with dogs, it is otherwise not well known even to the African tribesmen. Comparison of the skeleton of the Fort Ternan giraffe did in fact show that the skeleton of the okapi resembled it in many ways. Was the Fort Ternan beast actually a Miocene okapi? Similar features include a very horse-like conformation of the bones at the back of the skull and braincase, as well as of the cervical vertebrae; although the even-toed ungulate characteristic found in both indicates that the resemblance is superficial, an example of what evolutionary biologists call convergence.

Further searching of other reports of extinct giraffes or their early relations suggested that the genus *Palaeotragus* (literally meaning "old goat") might reveal similarities or even contain the Fort Ternan animal. This seemed an unlikely proposition at first glance since all previous records of "old goat" were from Asia, mainly China and northern India, and Europe including Greece and the Crimea. The possibility did remain, however, since the Suez isthmus had become dry land during early Miocene times and was thus available to ungulates as a bridge from Asia to Africa.

To solve the mystery, detailed examination of the literature and later of museum specimens in Paris, London and New York all substantiated that the Fort Ternan animal was in fact the "old goat" *Palaeotragus*. Yet it was none of the species which had been described to that time. Many of its characteristics were more primitive—especially the teeth—and alone constituted a new species. (I must confess my disappointment, however, at no longer having the opportunity to provide a clever generic name derived from the "Twiggy-like" appearance of the long, slender-legged creature and the Swahili word for giraffe, "Twiga.")

The Fort Ternan giraffe was coeval with more advanced species living in Asia and Europe. Therefore it could be considered as representative of an earlier form—say early Miocene, which moved into Africa and survived as a relict into the Upper Miocene, the age of Fort Ternan's deposits, where it was either displaced by or evolved into the more advanced forms that were then living in Asia.

Kenya was not all work. I visited the game parks, saw friends on the Coast and Highlands

Three-quarter front view of a skull and lower jaw of Lystrosaurus, *a dicynodont of presumed seal-like habits. Note the large orbits, the long downwards-directed snout, spout-like and toothless lower jaw, and tusks that give the Dicynodonta their name.*

and was happy simply not to be struggling through the Canadian winter.

My work in South Africa involved the collection of skeletal remains of some of the Dicynodont mammal-like reptiles and others coeval with them. I went to meet my friend, James Kitching of the Bernard Price Institute, with whom I was to work. Although our lines of communication got a bit crossed, we eventually met in Hutchinson, near Victoria West, in the Cape Province (which appears on few maps outside South Africa). After a greeting of some warmth, for we hadn't seen each other in about 15 years, we left Hutchinson and drove west through Victoria West to James' tent camp on the farm Buffelsfontein (literally, buffalo spring). Just to stretch my legs, I walked up to the crest of a small hill back of the camp where I found my first small scraps of dicynodont bone and a couple of small and badly weathered skulls of *Dicynodon sollasi.*

Each day began about 6:00 a.m., before dawn, with frost on one's sleeping bag and the silence of the Karoo except for the call of a few birds. Our hot breakfast consisted of coffee, mealie pap (corn meal porridge) with either jam or sauce, some boerewors (spiced farmers' sausage), coffee and bread, and then off with a pack of paper, a geological hammer and chisels, The frosted mornings always evolved into warm days, and we usually dressed in shorts, shirt and pullover. We also had to wear good boots and stockings, as the terrain was either rocky or rock scree and there were even fields of weathered "cannonball" dolerite boulders. We walked some 10-20 miles a day uphill and down and collected about 10 good specimens each. By agreement, really fine or important specimens went to the Bernard Price Institute, as I only needed them for exhibition at the ROM or teaching at the University of Toronto. James and I usually got back about 4 p.m. for a cup of coffee and a short rest before Lukas, James' assistant, gave us dinner. Lukas often accompanied us for the morning and then walked back to prepare dinner anytime from noon onwards.

James Kitching is justly famed for his ability to see more fossils while crossing broken country at what is a gallop than probably anyone else, and it was quite an education for me to watch him at work. Each specimen had to be chipped from the rock, and if it penetrated more than a few inches, the shale that formed the matrix would become progressively less weathered and more difficult to penetrate. The shales of the Karoo system have often been heat-tempered by the intrusion of dykes and sills of a molten basalt which subsequently hardened into the resistant dolerite. Fossils that lay close to one of these intrusions were often metamorphosed and undesirable palaeontologic-

ally, but those at a distance are usually relatively undistorted and whole.

Each specimen as it was extracted was wrapped in sheets of newspaper and put in the pack. Consequently, after a successful day, one's pack became weightier and one's legs and back weaker and more tired.

The 10 days collecting with James Kitching produced about 50 specimens of dicynodonts and Gorgonsopsida, all of which are now in Toronto after negotiations with the South African Historical Monuments Commission.

I was sad to leave the land where the sun came up to tint the hill tops salmon or red—hills with romantic names such as Leeukop (lion's head), Kapokberg (cotton mountain) or Spitskop (pointed head); where the air was crisp and clear and relatively free of pollutants.

I returned to Pretoria for the final phase of my visit. Dr. C. K. Brain had asked me to work on the giraffe material from the Transvaal Caves that had produced the ape-man deposits. We spent a few days looking over all the material that was available, but found nothing that could be called giraffe.

As a second thought, I started looking at horse and zebra material from the same sites. The horses present were of four types. There was an extinct large horse (*Equus capensis*) similar in size to a hunter; two zebras, the extant Burchell's zebra (*Equus burchelli*) and the recently extinct quagga (*Equus quagga*), and also a primitive three-toed horse (*Hipparion steytleri*).

The results were simple. Out of eight sites, the three toed and more primitive horse appeared in the second oldest and youngest sites; the two zebras in the five youngest sites and the large horse in the youngest and oldest sites. Thus no succession of primitive or extinct forms being replaced by more advanced or extant forms was discernible.

We then decided to go further in the horse material and attempted to estimate the number of individuals of each species present at each site. This was a most complex procedure, since the specimens we had were mainly cheek teeth and exceedingly complicated to work with and piece together. Association of teeth to single quadrants of the animal's mouth depend on matching the wear-facets between the teeth, coloration and preservation of specimens and identification of each tooth to a position in the row.

After a great deal of painstaking work, we concluded that out of the 258 cheek teeth specimens from eight sites, there had probably been about 76 or 77 individual horses. This was a fascinating exercise in detecting criteria and minutiae and we observed that preservation was correlated with massiveness, as might be expected. At the same time, we did indeed wonder why, out of all the possible horse bones ape-men could have collected, they chose teeth?

Charles Stephen (Rufus) Churcher was born at Aldershot, England in 1928, and earned degrees from the University of Natal, the University of Toronto, and Oxford. He joined the ROM as Research Associate and the University of Toronto as Assistant Professor in 1957, and is now a Professor in the Department of Zoology. While at the University of Natal he was associated with the Transvaal Museum, and joined expeditions to the Kalahari and to Makapans Gat as well as making his own expeditions to various parts of East Africa. In Canada, he has dug at Rainy River, Fort Albany and along the South Saskatchewan River.

The Growing Collections

Although basically after the Hepplewhite-derived design of Thomas Shearer *(The Cabinet Makers' London Book of Prices, 1788)*, this sophisticated sideboard in its New Brunswick adaptation is a most unusual acquisition.
The piece has a solid West Indian mahogany top.
It is mahogany veneered on the front only, over butternut frame, legs and sides, and white pine drawer fronts.
The line inlays and diamond keyhole liners are maple.
All legs are tapered on two adjoining sides, giving an illusion of flare, with long spade feet; the end front legs have chamfered outer corners. The drawers, two on the left, one in the centre and a deep bottle drawer on the right, are entirely of white pine, with original pulls. Drawer fronts are thick, the serpentine curve achieved by shaping rather than steaming or bowing, and the drawer-front sides are flat.
The sideboard (972.99) was acquired by its recent private owner in St. John, New Brunswick some twenty years ago, and both style and woods strongly suggest that area, *c.* 1800-1815, as its origin. The Canadiana department acknowledges the assistance of the Purchase Trust Fund.

The Department of Geology has acquired a suite of 188 well-documented specimens of Muskoka rocks (Grenville Gneiss) from the Moon River structure, collected by Dennis Waddington, as well as 42 relevant thin sections and a location map.
Of historical interest in the Geology collections is a piece of "the Rock" (the Rock of Gibraltar), donated recently through the courtesy of Mr. F. H. Bragg, President, Canadian Operations, Prudential Insurance Company of America.

South-east Asia is now known through daily reports of the sad events taking place there. Yet few people are aware of this area's complex history and diverse cultures. Climatic conditions, unfavourable to the preservation of material remains, are partially responsible for our general ignorance. Relatively few monuments of antiquity have survived the tropical jungle's power to disguise and transform all that is perishable.
The Far Eastern Department's acquisition of a Buddhist bronze statuette (972.82) offers an insight into one of south-east Asia's high cultures. This Padmapāni-lokeśvara is associated with the Srivijaya kingdom which dominated Sumatra, the Malayan peninsula and western Java between the 8th and 10th centuries. Its iconography and sculptural style reflect a strong influence from eastern India, long connected with the Indonesian islands by sea-trade. Though different from Buddhist images in northern Asia, the bronze extends the Museum's display of Mahāyāna Buddhism's art to the one area in south-east Asia where this school prevailed.
The acquisition was made possible through the generosity of individual benefactors, in addition to the Purchase Trust Fund. We thank Mr. and Mrs. R. W. Finlayson, Mr. and Mrs. H. Gustin, Mr. and Mrs. G. G. R. Harris, Mrs. D. Hoover, Mr. J. Kitz, Mrs. A. D. Matthews, Mr. P. S. Quan and Mrs. E. J. Stone.

Through the generosity of Mrs. William C. Van Horne, the Museum has been presented with a particularly fine example of 17th century Bengal embroidery made for the Portuguese market. It is a bedspread of fine cotton richly embroidered with yellow silks (972.117.8). The main features of the design are medallions containing scenes from the Old Testament and classical mythology.
Embroideries were among the most coveted trade goods brought from India to Europe in the 17th and 18th centuries. Those from Bengal worked with tussor silk — which was naturally yellow — were especially popular in Portugal and were also the inspiration for this favourite colour scheme in English embroideries in the late 17th and early 18th centuries. The designs first imported were to the Indian taste and were little more than a passing novelty. Once designs were sent to India to be copied, trade flourished.
Through the help of the Group of One Hundred, the Textile Department has been able to purchase an embroidered frontal or antependium (972.109.2) made in France shortly before the outbreak of the French Revolution. It has been professionally embroidered in coloured silks and gold thread on blue satin. Scrolls and palmettes are interspersed with flowers, birds, spiders, snails and other motifs of a purely secular nature. This piece is a welcome addition to our few examples of European continental embroidery showing the quality characteristic of professional workshops.

The Mineralogy Department has acquired two species new to its collections: nuffieldite from British Columbia and beryllite from Greenland. A polished section containing the type material of two new species, mooihoekite and haycockite (from the Republic of South Africa), were given to the collection by Dr. Louis Cabri. Another set of polished sections containing the material studied for the redefinition of michenerite and the confirmation of froodite (both rare palladium minerals from the Sudbury area) were deposited in our collections and were prepared from one of our specimens. A collection of minerals from Ontario with detailed localities was donated by Dr. J. Satterly, and a dozen specimens from Austrian localities were presented by Mr. Mike Ridding. Superb leucophane crystals, up to 1″ x 1″ x ⅛″, and some spectacular rhodochrosite crystals, both from St. Hilaire, Quebec, were purchased. A lovely, clear, twisted, Swiss smoky quartz group was acquired and was exhibited in the recent Quartz Show. The U. S. National Museum presented the ROM with a magnificent Californian laumontite crystal group, 4″ x 3″ with crystals up to 3½″ long, on behalf of Friends of Mineralogy.

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